

Smart Inverter Working Group Workshop on Adoption of Phase 2 and 3 Recommendations  
(R. 11-09-011)  
November 17, 2016 / CPUC Hearing Room E / 10:30am-2:30pm

**WORKSHOP SUMMARY**

**Background**

Decision 16-06-052 requires the IOUs to file separate Tier 3 advice letters proposing revisions to Rule 21 regarding any agreed-upon technical requirements, testing and certification processes, and effective dates for Phase 2 *communication protocols* and Phase 3 *additional advanced inverter functions* by December 20, 2016. In the absence of consensus on these functions, the IOUs are directed to file a status report and work plan. D.16-06-052 encouraged the Smart Inverter Working Group (SIWG) to reconvene as necessary in advance of the advice letter filings in order to reach consensus on the proposed revisions.

**Figure: Phase 2 and 3 Recommendations of the Smart Inverter Working Group**

Phase 2 Communication Protocols	Phase 3 Advanced Functions
<ul style="list-style-type: none"><li>• Must be capable of communications</li><li>• Default protocol: IEEE 2030.5 (aka SEP 2.0)</li><li>• Three pathways:<ul style="list-style-type: none"><li>○ IOU – DER</li><li>○ IOU – DERMS</li><li>○ IOU – retail aggregator</li></ul></li></ul>	<ol style="list-style-type: none"><li>1. Monitor key DER data</li><li>2. DER cease to energize/return to service request</li><li>3. Limit maximum real power mode</li><li>4. Set real power mode</li><li>5. Frequency-Watt emergency mode</li><li>6. Volt-watt mode</li><li>7. Dynamic reactive current support mode</li><li>8. Scheduling power values and modes</li></ol>

**ED Assessment of State of Working Group Consensus**

- Phase 2: High level of consensus on both standards and procedural options. Main issue is determining an optimal/feasible “required by” date.
- Phase 3: Medium-high level of consensus on what the solvable remaining technical issues are. Working group identified a dozen outstanding issues that need to be resolved prior to implementation, some of which were technical, some of which were related to how/when the functions would be used or compensated. Main issue is determining relationship and timing of Phase 3 implementation to international IEEE 1547 standard.

**Workshop Objectives**

- Provide guidance to the utilities for their December 20th compliance filings.
  - For Phase 2: Provide utilities with the information they need to propose Rule 21 revisions by Dec. 20
  - For Phase 3: Determine the state of WG consensus and if necessary, develop high-level work plan to reach agreement in the next 3-6 months
- Clarify the SIWG’s charter is limited to making technical recommendations and that discussion of compensation mechanisms are out of scope.

## 80 Participants (Both in person and on the conference line)

- CEC staff
- Utilities (e.g. California IOUs, SMUD, HECO, PacifiCorp)
- Smart Inverter Manufacturers (e.g. Fronius, SolarEdge, Enphase)
- Industry (e.g. SolarCity, CALSEIA, IREC)
- Testing/Certification Organizations (Kitu Systems, SunSpec Alliance)
- ORA

## Workshop Outcomes

- Phase 2:
  - **Utilities will propose revisions to Rule 21 adopting Phase 2 recommendations in their December 20<sup>th</sup> advice letter filing. “Required by” date will be 9-12 months following the release of a SunSpec Alliance certification protocol or another industry/CEC-recognized certification protocol.**
  - Utilities will try to share proposed language with parties prior to December 20<sup>th</sup>.
  - Staff suggested picking the later of early 2018 or required by X months following release of certification.
- Phase 3:
  - Main debate: Given the significant overlap between the eight Phase 3 functions and the proposed revision to the international IEEE 1547 standard, should California move forward with their own requirements or adopt IEEE 1547 once the revision is complete? It was estimated that the revision would be complete somewhere between Q4 2017 and Q4 2018; however, there is no guarantee of this timeline.
  - **A subset of the working group (Enphase, Fronius, California IOUs) will perform a gap analysis between the two standards on November 28<sup>th</sup>.** Energy Division and the Working Group will use the results to determine how utilities should file on December 20<sup>th</sup>. Options include:
    - A. File a work plan outlining specific steps for WG to reach consensus on Phase 3 within 3-6 months. This option would likely involve bringing back Frances Cleveland from Xanthus Consulting to facilitate. The CEC is looking into contracting now. This WG will assess what progress the IEEE 1547 standards process has made in 3-6 months and determine the ideal timing of submitting Rule 21 tariff revisions.
    - B. Propose language in Rule 21 adopting Phase 3 requirements with only minor changes on 12/20/16.
  - Energy Division staff offered the perspective that California can and should remain in a leadership role in the development and implementation of advanced smart inverter standards. Energy Division acknowledges that coordination with IEEE 1547 is valuable; however, such collaboration is contingent on a reasonable time period so that California can continue to move forward.
  - Energy Division also cited the recently endorsed CPUC DER Action Plan Continuing element 2.8 as a guiding vision for the SIWG to help the CPUC achieve:
    - 2.8. By 2020, fully operationalize advanced smart inverter functionalities to enhance the integration of DERs into the grid.